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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/802,040

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Kengo Akimoto

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09/12/2005

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EXAMINER

TRAN, MAI HUONG C

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/802,040	Applicant(s) AKIMOTO ET AL.	
	Examiner Mai-Huong Tran	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 21-23 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 24-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restriction

Application's election without traverse of Group I (Claims 1-20 and 24-28) drawn to a semiconductor device is acknowledged for prosecution in the subject application. Accordingly, claims 21-23 and 29 are cancelled.

Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

Claim Rejections - 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 3-4 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Pub. No. 2003/0122799 to Yu.

Regarding to claim 1, Yu discloses a display device comprising a transistor and an electrode electrically connected to the transistor, wherein the electrode comprises a first transparent conductive film 142 comprising indium tin oxide containing one or both of silicon oxide and silicon as the bottom layer, and a second transparent conductive film 140 comprising indium tin oxide as the top layer (page 3, [0033]).

Regarding to claim 3, Yu discloses a display device comprising a transistor and an electrode electrically connected to the transistor, wherein the electrode comprises a first amorphous transparent conductive film 142 as the bottom layer and a second crystalline transparent conductive film 140 as the top layer (page 3, [0033]).

Regarding to claim 4, Yu discloses a display device comprising a transistor and an electrode electrically connected to the transistor, wherein the electrode comprises a first transparent conductive film comprising amorphous indium tin oxide (ITO) as the bottom layer and a second transparent conductive film comprising crystalline indium tin oxide (ITO) as the top layer (page 3, [0033]).

Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2818

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S.

Publication No. 2003/0122799 to Yu in view of U.S. Patent No. 6,580,212 to Friend.

Regarding to claim 2, Yu discloses a display device comprising a transistor and an electrode electrically connected to the transistor wherein the electrode comprises a first transparent conductive film 142 comprising indium tin oxide containing one or both of silicon oxide and silicon as the bottom layer, and a second transparent conductive film 140 (page 3, [0033]).

Yu does not disclose the second transparent conductive film has a work function of 5.0 eV or more as the top layer.

However, Friend teaches the transparent conductive film (ITO) has a work function of greater than 4.3 eV (col. 5, lines 38-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the second transparent conductive film that has a work function of 5.0 eV or more as the top layer since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims 5-15 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Publication No. 2003/0122799 to Yu in view of the remark.

Regarding to claim 5, Yu discloses the claimed invention except for the electrode comprises a first transparent conductive film including oxygen at 61 atomic %, indium at 34 atomic %, tin at 2 atomic %, and silicon at 3 atomic % as the bottom layer, and a second transparent conductive film including oxygen at 62 atomic %, indium at 36 atomic %, and tin at 2 atomic % as the top layer.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to form the electrode that comprises a first transparent conductive film including oxygen at 61 atomic %, indium at 34 atomic %, tin at 2 atomic %, and silicon at 3 atomic % as the bottom layer, and a second transparent conductive film including oxygen at 62 atomic %, indium at 36 atomic %, and tin at 2 atomic % as the top layer, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding to claims 6-10, Yu discloses the claimed invention except for the display device wherein the second transparent conductive film has a film thickness of 30 nm or less.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the second transparent conductive film that has a film thickness of 30 nm or less, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding to claims 11-15, Yu discloses the claimed invention except for the display device wherein a terminal portion of a flexible printed circuit has a laminated structure of a conductive film that has a specific resistance of $3\ \mu\Omega$ or less, the first transparent conductive film, and the second transparent conductive film.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device wherein a terminal portion of a flexible printed circuit has a laminated structure of a conductive film that has a specific resistance of $3\ \mu\Omega$ or less, the first transparent conductive film, and the second transparent conductive film, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding to claims 24-28, the display device is applied in an electronic device selected from the group consisting of a video camera, a laptop personal computer, a personal digital assistant, a digital camera and a mobile phone (page 1, [0003]).

Claims 16-20 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Publication No. 2003/0122799 to Yu in view of Kim et al. (US Pub. No. 2003/0067266).

Regarding to claims 16-20, Yu discloses the claimed invention except for the display device wherein a silicon nitride film is provided below the first transparent conductive film.

Kim discloses the display device wherein a silicon nitride film 124 is provided below the first transparent conductive film 126b (page 4, [0053]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device wherein a silicon nitride film is provided below the first transparent conductive film, as taught by Kim in order to provide an organic electroluminescent display device that reduces the reflectivity with respect to external light, thereby providing improved contrast and resulting in excellent display quality (page 2, [0026]).

Conclusion

Any inquiry concerning this communication on earlier communications from the examiner should be directed to Mai-Huong Tran, (571) 272-1796. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM. The examiner's supervisor, David Nelms can be reached on (571) 272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR, Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'MHT' or similar, located below the main text block.A handwritten signature in black ink, appearing to be 'Mai-Huong Tran', located below the main text block.
Mai-Huong Tran